

Match each function with its graph.

12.  $f(x) = -(x+3)^2 - 1$

c

13.  $f(x) = (x-4)^2 + 2$

b

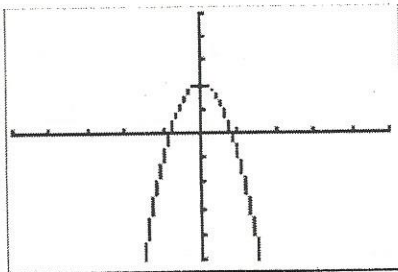
14.  $f(x) = -3x^2 + 2$

a

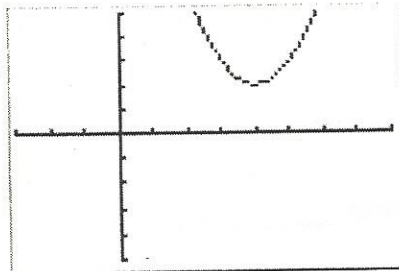
15.  $f(x) = \frac{1}{2}x^2 - 4$

d

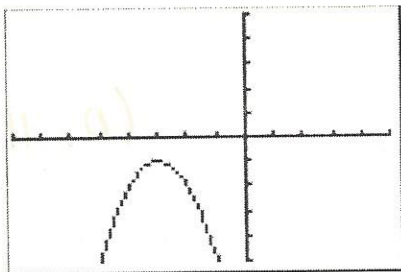
a)



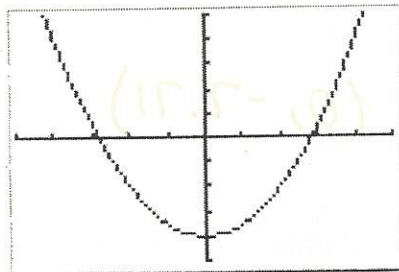
b)



c)



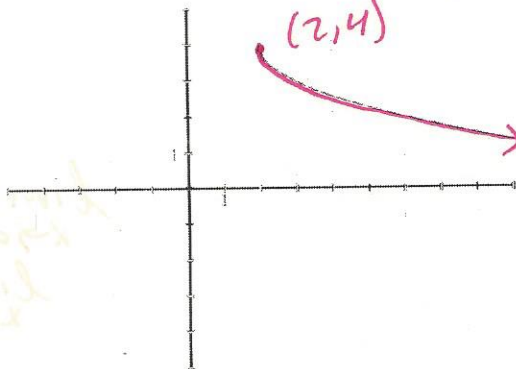
d)



Find the domain and range of each function graphed.

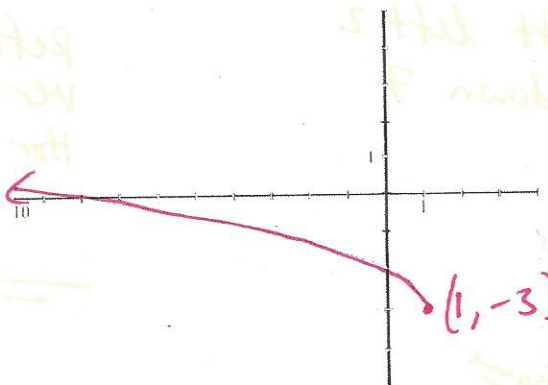
16. Domain  $[2, \infty)$

Range  $[-\infty, 4]$



17. Domain  $[-\infty, 1]$

Range  $[-3, \infty)$



For the sequence, write the rational equation that models the relationship between the term in the sequence and its value.

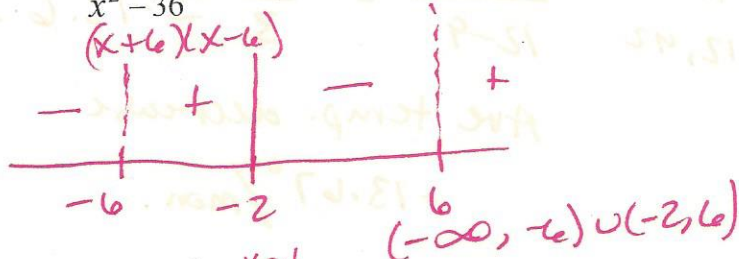
26.  $-\frac{1}{2}, 0, \frac{1}{4}, \frac{2}{5}, \frac{1}{2}, \frac{4}{7}, \dots$

term	value
1	$-\frac{1}{2}$
2	0
3	$\frac{1}{4}$
4	$\frac{2}{5}$
5	$\frac{1}{2}$
6	$\frac{4}{7}$

$$y = \frac{x-2}{x+1}, x \geq 1 \text{ and an integer}$$

Solve each equation or inequality.

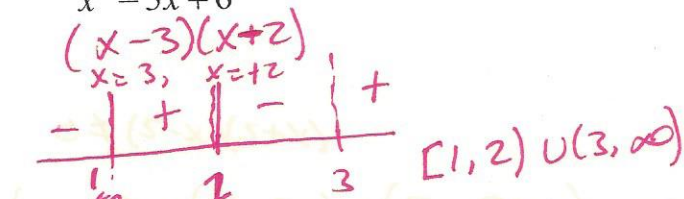
27.  $\frac{x+2}{x^2-36} < 0$



28.  $\frac{3}{x+6} + \frac{4}{x^2-36} = \frac{1}{x-6}$

$$x = 10$$

29.  $\frac{x-1}{x^2-5x+6} \geq 0$



30.  $\frac{1}{x+4} + \frac{2}{(x+4)^2} = 1$

$$x = -5, x = -2$$

Use the following functions for 31 – 34  $f(x) = x^2 + 3$  and  $g(x) = -3x - 4$ , to find the algebraic expression for  $h(x)$ .

31.  $h(x) = (f - g)(x)$

$$h(x) = x^2 + 3x + 7$$

32.  $h(x) = (fg)(x)$

$$h(x) = -3x^3 - 4x^2 - 9x - 12$$

33. Evaluate:  $f(-2) \cdot (g)(1)$

$$-49$$

34. Evaluate:  $f(0) \cdot (g)(\pi)$

$$-9\pi - 12$$

Find the inverse of each function.

35.  $f(x) = -2\sqrt{x-5}$

$$f^{-1}(x) = \frac{x^2}{4} + 5; x \leq 0$$

36.  $f(x) = \frac{\sqrt{x+3}}{6}$

$$f^{-1}(x) = 36x^2 - 3; x \geq 0$$